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INEEL Storm Water Pollution Prevention Plan for Construction Activities-Generic Plan

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Revision 2

INEEL Storm Water Pollution Prevention Plan for Construction Activities-Generic Plan

LMITCO Environmental Programs

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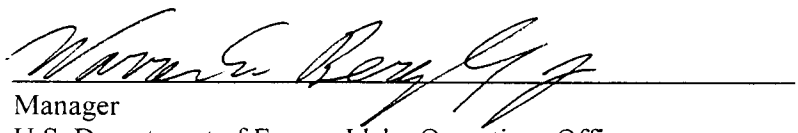
Idaho Operations Office

REVISION LOG

Rev.	Date	Affected Pages	Revision Description
0	1/94	All	Initial Issue
1	5/95		Update to add site-specific tabs, maps, and plans. The update also includes cover, spine, issue sheet, manual holder's requirements, table of contents, and this revision log.
2	5/98	All	Revise to modify geographical area of permit applicability, accommodate reissued permit, and reflect previous addition of site-specific plans. Add Appendix C, "Forms." Add Appendix D, "General Permit." Add Appendix E "Correspondence."

Certification Statement
INEEL Storm Water Pollution Prevention Plan for Construction Activities

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature  Date: 5/12/98

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Signature: _____ Date: 5/7/98

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EXECUTIVE SUMMARY

This *INEEL Storm Water Pollution Prevention Plan for Construction Activities (SWPPP-CA)-Generic Plan* meets the requirements of a permit for storm water discharges from construction activities. The plan includes aspects of storm water pollution prevention common to construction activities at areas on the INEEL that have a potential to discharge storm water to waters of the United States. The aspects common to construction activities include site description and assessment, erosion and sediment control, storm water management, identification and control of potential sources of pollution, construction, implementation, maintenance, inspection, and final stabilization. The plan includes guidance for preparation of project-specific SWPPP-CAs. Appended to this Generic Plan are facility-specific SWPPP-CAs, which provide drainage and development information.

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TABLES

ACRONYMS

ANL-W	Argonne National Laboratory West
CFA	Central Facilities Area
CTF	Contained Test Facility
CWA	Clean Water Act
DOE-ID	U.S. Department of Energy Idaho Operations Office
EPA	Environmental Protection Agency
ICPP	Idaho Chemical Processing Plant
IDHW	Idaho Department of Health and Welfare
IET	Initial Engine Test
INEEL	Idaho National Engineering and Environmental Laboratory
LMITCO	Lockheed Martin Idaho Technologies Company
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRF	Naval Reactors Facility
PBF	Power Burst Facility
RWMC	Radioactive Waste Management Complex
SDA	Subsurface Disposal Area
SMC	Specific Manufacturing Capability
SWPPP-CA	Storm Water Pollution Prevention Plan for Construction Activities
SWPPP-IA	Storm Water Pollution Prevention Plan for Industrial Activities
TAN	Test Area North
TRA	Test Reactor Area
TSA	Transuranic Storage Area
TSF	Technical Support Facility
WRRTF	Water Reactor Research Test Facility

INEEL STORM WATER POLLUTION PREVENTION PLAN FOR CONSTRUCTION ACTIVITIES- GENERIC PLAN

1. INTRODUCTION AND SCOPE

The Idaho National Engineering and Environmental Laboratory (INEEL) must comply with the National Pollutant Discharge Elimination System (NPDES) (40 CFR 122) *General Permit for Storm Water Discharges from Construction Activities* issued by the U.S. Environmental Protection Agency (EPA) on February 17, 1998 (EPA 1998, see Appendix D). The General Permit requires a storm water pollution prevention plan for construction activities (SWPPP-CA) to be implemented on May 18, 1998. This plan addresses **discharge of storm water associated with construction activities** at the INEEL that have a potential to discharge storm water to **waters of the United States**. It presents **control measures** for storm water pollution prevention. It discusses site descriptions, **pollution prevention practices, construction,** implementation, maintenance, inspection, and notifications. (See Section 6, "Definitions," for bold terms.)

The U.S. Department of Energy Idaho Operations Office (DOE-ID) and Lockheed Martin Idaho Technologies Company (LMITCO) are co-permittees of the General Permit. The DOE-ID and LMITCO share operational control of specifications and plans. The DOE-ID has responsibility for funding activities to ensure compliance with permit conditions. The DOE-ID is also responsible for decisions concerning policy, programmatic direction, and prioritization. Lockheed Martin Idaho Technologies Company has operational control of activities to ensure compliance with permit conditions in its role as the management and operating contractor to DOE-ID. In that role, LMITCO usually prepares project-specific SWPPP-CAs, procures general construction contractors and subcontractors, and provides oversight of their activities. Construction activities may involve INEEL organizations, subcontractors, or other entities. LMITCO is only responsible for the construction activities of its employees and subcontractors.

The Notice of Intent submitted to the EPA by DOE-ID and LMITCO in May 1998 (see Appendix E) is sufficient for all construction projects on the INEEL. For construction projects off-Site, such as in Idaho Falls, a Notice of Intent may be required.

1.1 Purpose

The General Permit is based on national studies that pointed to storm water discharges as a significant source of **pollutants** (see definition) and cause of water use impairment in receiving streams. Storm water runoff becomes polluted as it flows over surfaces where construction activity is taking place and picks up soil particles and other pollutants. The EPA's goal of storm water management is to improve water quality by reducing pollutants in storm water discharges.

The General Permit does not authorize storm water discharges from construction sites that cause, or have reasonable potential to cause or contribute to, violations of water quality standards. The EPA determined the best approach to storm water management for construction sites is through self-designed storm water pollution prevention plans based on the use of control measures. For construction sites, there are three types of control measures: those that prevent erosion, those that trap pollutants before they can be discharged, and those that prevent contact between pollutants and storm water runoff. The plans are

designed to prevent or minimize the pollution of storm water before it has a chance to affect receiving streams.

1.2 Compliance With Other Acts

1.2.1 Endangered Species Act

The *Endangered Species Act* establishes a program for the identification and conservation of listed species and critical habitat. The Act requires federal agencies to take into account the effects of their actions on the species and habitat. The EPA has included several conditions in the General Permit to ensure the activities that it regulates protect listed species and critical habitat. In addition, the General Permit's coverage does not extend to discharges and discharge-related activities likely to jeopardize the continued existence of species proposed but not yet listed as endangered or threatened or result in the adverse modification of habitat proposed to be designated critical habitat (EPA 1998). Project SWPPP-CAs address means to ensure compliance with the Act.

1.2.2 National Historic Preservation Act

The *National Historic Preservation Act* establishes a national historic preservation program for the identification and protection of historic properties and resources. Federal agencies are required to take into account the effects of their actions on historic properties that are listed or eligible for listing on the National Register of Historic Places. The General Permit was proposed with a number of conditions pertaining to the consideration of historic properties. The EPA has decided to not include those conditions at this time. The EPA will continue working towards the possible development of a more comprehensive and efficient approach to ensure that effects to historic properties are given appropriate consideration while ensuring undue burdens are not imposed on applicants and regulatory authorities. The EPA may modify the General Permit to incorporate procedures regarding the protection of historic properties and resources later (EPA 1998), and this plan would be revised accordingly.

1.3 Idaho Requirements

In addition to the requirements for coverage identified in the General Permit, the SWPPP design and associated storm water discharge quality shall demonstrate compliance with applicable Idaho water quality standards (EPA 1998). The Idaho water quality standards are published in the Idaho Department of Health and Welfare (IDHW) Rules and Regulations. The Big Lost River, Birch Creek, and Little Lost River are protected from their sources to the playas (IDHW 01.02.150). The general surface water quality criteria address the following topics:

- Hazardous materials
- Toxic substances
- Deleterious materials
- Radioactive materials
- Floating, suspended, or submerged matter
- Excess nutrients

- Oxygen demanding materials
- Sediment (IDHW 01.02.200).

As of May 1998, the classifications of the waters were those shown in Table 1-1 (IDHW 01.02.150). The water quality criteria for each classification are stated in Section 250 of the Water Quality Standards and Wastewater Treatment Requirements (IDHW).

The INEEL will demonstrate compliance in accordance with EPA's interim approach for water quality-based effluent limitations in storm water permits (EPA 1996). The interim approach uses pollution prevention practices to provide for the attainment of water quality standards. The INEEL will use pollution prevention practices and monitoring (performing visual inspections and implementing corrective measures) as required by the General Permit to ensure that SWPPP design and associated storm water discharge quality demonstrate compliance with Idaho water quality standards. Pollution prevention practices, inspections, and corrective measures are detailed in Section 4 of this plan, "Project SWPPP-CAs."

1.4 Penalties for Noncompliance

Noncompliance with permit conditions may constitute a violation of the *Clean Water Act* and may be grounds for enforcement action, including permit termination, revocation and reissuance, modification, or denial of a permit renewal application. Substantial penalties may result from violations of permit conditions and could include the following categories: (1) criminal violations (negligent violations, knowing violations, knowing endangerment, and false statement), (2) civil penalties, (3) administrative penalties, (4) penalties for falsification of reports, and (5) penalties for falsification of monitoring systems. Table 1-2 specifies the types of violations and associated penalties, as stated in the General Permit.

Facility and project SWPPP-CAs implement the requirements of the *Clean Water Act* and the General Permit. Failure to comply with the requirements of a specific SWPPP-CA can constitute either civil or criminal (if knowing or willful) violations of the law.

Table 1-1 Classifications for surface water.

Waters	Domestic Water Supply	Agricultural Water Supply	Cold Water Biota	Warm Water Biota	Salmonid Spawning	Primary Contact Recreation	Secondary Contact Recreation	Special Resource Water
Big Lost River	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Birch Creek	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Little Lost River	No	Yes	Yes	No	Yes	Yes	Yes	No

Table 1-2. Penalties for noncompliance with permit requirements.

General Permit Reference and Penalty Category	Penalty
Part VI.A.2.a.(1) Criminal/Negligent Violations	"The CWA [*Clean Water Act*] provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both."
Part VI.A.2.a.(2) Criminal/Knowing Violations	"The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both."
Part VI.A.2.a.(3) Criminal/Knowing Endangerment	"The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both."
Part VI.A.2.a.(4) Criminal/False Statement	"The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than 2 years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or by both. (See Section 309.c.4 of the *Clean Water Act*)."
Part VI.A.2.b. Civil Penalties	"The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $25,000 per day for each violation."
Part VI.A.2.c. Administrative Penalties	"The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows: *(1) Class I penalty* - Not to exceed $11,000 per violation nor shall the maximum amount exceed $27,500. *(2) Class 2 penalty* - Not to exceed $11,000 per day for each day during which the violation continues nor shall the maximum amount exceed $137,500."
Part VI.H. Penalties for Falsification of Reports	"Section 309(c)(4) of the *Clean Water Act* provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both."

Note: CWA Sections listed are: 301, "Effluent Limitation," 302, "Water Quality Related Effluent Limitations," 306, "National Standards of Performance," 307, "Toxic and Pretreatment Effluent Standards," 308, "Inspections, Monitoring and Entry," 318, "Aquaculture," 405, "Disposal of Sewage Sludge," and 309(c)(4), "False Statements."

1.5 Records

Storm water pollution prevention plans and all reports required by the General Permit shall be retained for at least three years from the date the site is stabilized (EPA 1998). The records are under the custody of the INEEL storm water coordinator.

1.6 Accessibility

A copy of the storm water pollution prevention plan shall be retained at a location accessible to the EPA Director and the public from the date of project initiation to the date of final stabilization (EPA 1998). This plan is available at the INEEL Technical Library.

2. SITE DESCRIPTION AND ASSESSMENT

Following is a general description of the INEEL, including general information on its location, climate, topography and drainage patterns, soils, vegetation, and surface and subsurface hydrologic features. Some sources of information on specific facility areas are also provided.

2.1 Location

The INEEL occupies nearly 890 square miles (231 hectares) of dry, cool desert and is located along the western edge of the eastern Snake River Plain in southeastern Idaho. Most of the INEEL lies within Butte County, Idaho, although portions extend into Bingham, Bonneville, Jefferson, and Clark counties. All current site activities and facilities are situated well within the INEEL boundaries.

2.2 Climate

Except where noted, the information in this section has been obtained from *Climatography of the Idaho National Engineering Laboratory, 2nd Edition* (Clawson et al. 1989).

2.2.1 Temperatures

Site temperatures are important for revegetation, snowmelt discharge potential, and other construction activity considerations. Temperatures at the INEEL are characterized by large daily and seasonal fluctuations. During summer, low humidities and clear skies result in high temperatures and high evaporative demand during the day and rapid radiation cooling resulting in low temperatures at night. Winters are cold with two to three months having mean temperatures below freezing (Figure 2-1). The average annual temperature at the INEEL is 5.4°C (41.7°F), and the frost-free period is about 90 days. Topsoils usually remain frozen from mid- to late-November through mid-February.

2.2.2 Precipitation

Precipitation data are needed to design storm water management measures for both construction and post-construction periods. The INEEL is located in the rain shadow of the central Idaho mountain ranges and receives an annual precipitation of 224 millimeters (8.8 inches). Snow cover typically persists for two to three months or more. Figure 2-1 shows the general seasonal precipitation and temperature trends at the INEEL. Table 2-1 is a compilation of monthly precipitation data averaged over 43 years.

Precipitation is measured at the following five meteorological monitoring stations on the INEEL: Argonne National Laboratory West (ANL-W), Central Facilities Area (CFA), Test Area North (TAN), Radioactive Waste Management Complex (RWMC), and the Grid-III tower [east of Test Reactor Area (TRA) and north of Idaho Chemical Processing Plant (ICPP)].

2.3 Topography

The INEEL Site, located in the relatively flat eastern Snake River Plain, is bordered on the north and west by the Lost River, Lemhi, and Bitterroot-Centennial mountain ranges. A broad topographic ridge extends to the east along the north-central axis of the eastern Snake River Plain. The ridge effectively separates the drainage of the mountain ranges north and west of the INEEL Site from the Snake River. (See Section 2.6.2 for more specific drainage information.)

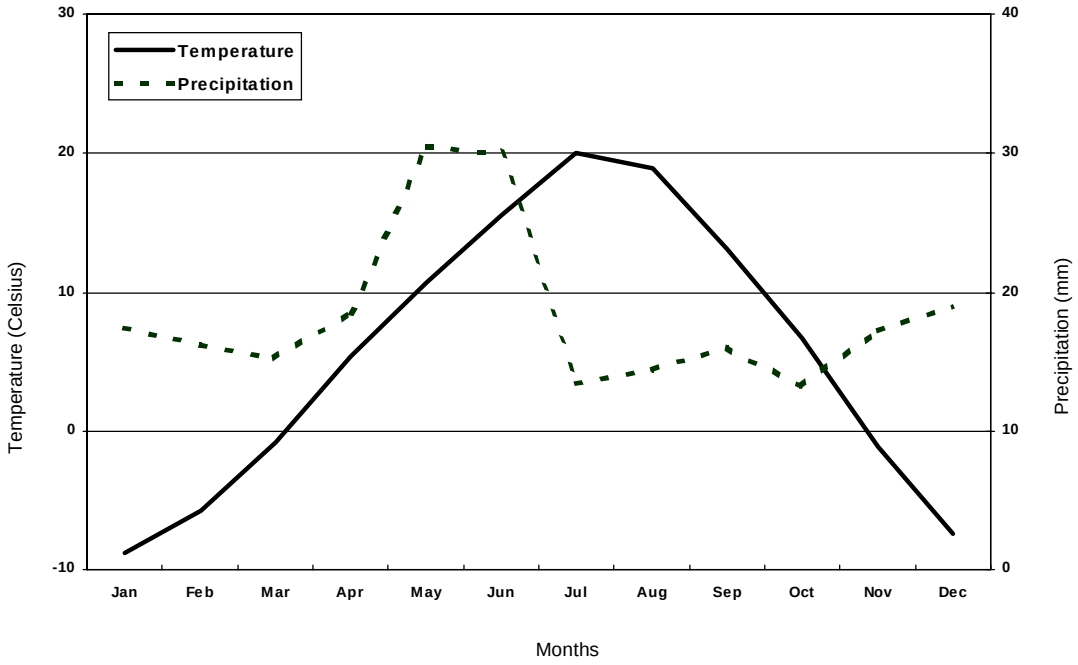

Figure 2-1. Climate diagram for the Idaho National Engineering and Environmental Laboratory, based on data for 37 years from the Central Facilities Area.

Table 2-1. Monthly precipitation data averaged over 43 years for the Central Facilities Area.[a]

Month	Monthly Total (in.)	No. Days Precipitation per Month[b]	Average Precipitation per Precipitation Day (in.)
January	0.69	7.44	0.09
February	0.64	6.72	0.10
March	0.60	6.20	0.10
April	0.73	6.00	0.12
May	1.20	7.75	0.15
June	1.18	7.13	0.17
July	0.53	3.72	0.14
August	0.57	3.72	0.15
September	0.63	3.60	0.18
October	0.52	3.72	0.14
November	0.68	5.70	0.12
December	0.75	7.13	0.11

a. Personnel communication from N. Hukari (NOAA) to Dennis Walker (EG&G, Idaho) 1992.

b. Number of days per month receiving 0.01 inch or more of precipitation.

2.4 Soils

The type of soil needs to be considered when designing erosion and sediment controls. Geologically, the surface of the INEEL is quite variable and includes loam, clay, loess, lacustrine sediments, various alluvial materials, sand dunes, and basalt. The surface soils vary widely in depth and water-holding capacity. Figure 2-2 shows general soils information for the INEEL (Olson, Jeppesen and Lee 1995).

2.5 Vegetation and Wetlands

Vegetation information is needed for revegetation planning and erosion control procedures during construction and post-construction activities. The INEEL is within the northern desert shrub biome. The vegetation types within the INEEL have been studied for the following environments: native upland vegetation (undisturbed), disturbed (developed sites), lava flow, and wetlands (Rope and Staley 1993). Figure 2-3 is a vegetation map for the INEEL. Also, Olson et al. (1995) describe typical vegetation for the soil types shown on Figure 2-3.

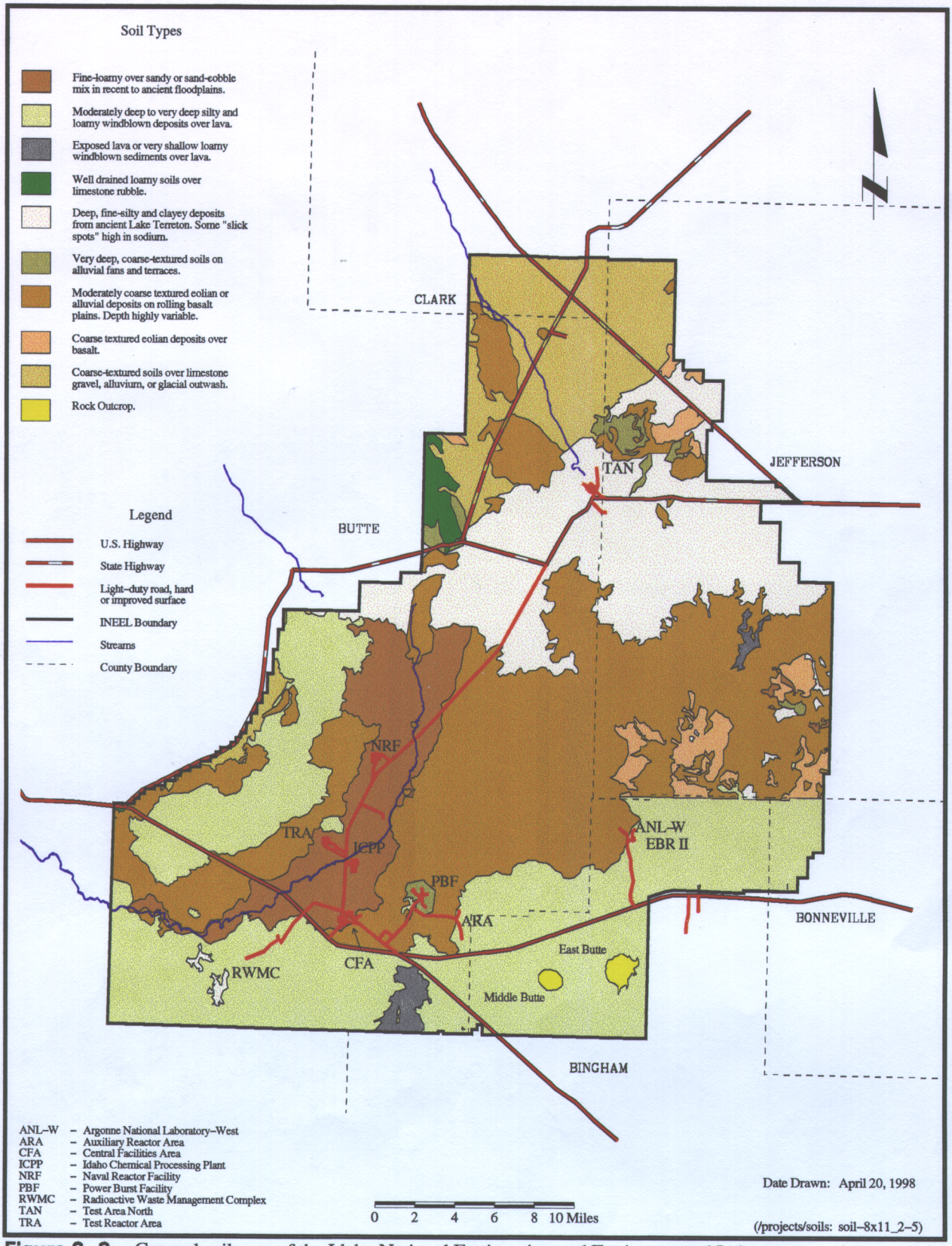

Figure 2- 2. General soil map of the Idaho National Engineering and Environmental Laboratory.

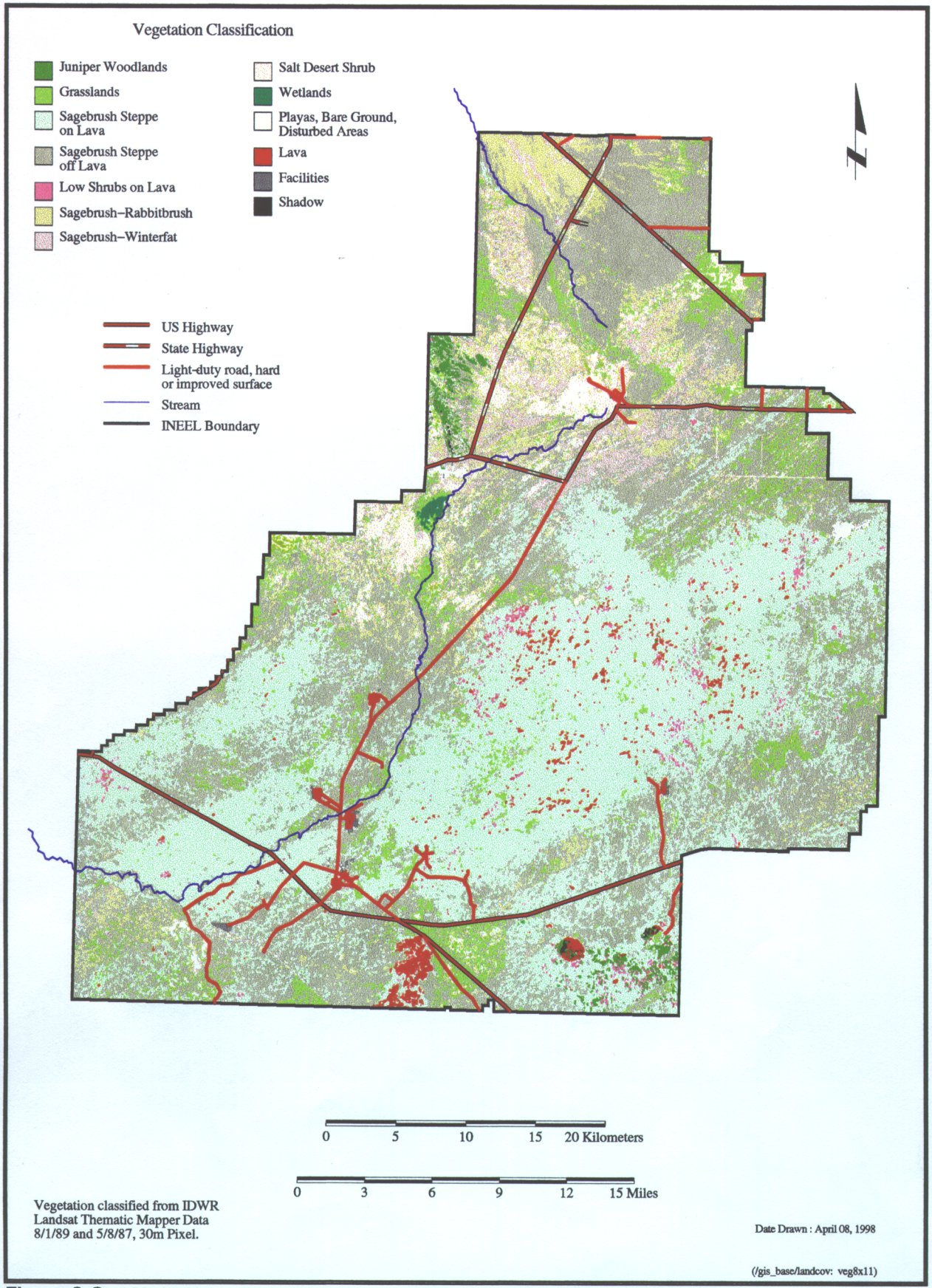

Figure 2-3. Vegetation at the Idaho National Engineering and Environmental Laboratory.

The undisturbed plant communities at the INEEL fall into five community types: saltbush desert, juniper woodlands, native grasslands, big sagebrush, and low sagebrush (Rope and Staley 1993). Disturbed areas are associated with the various facilities, highway and access roads, power lines, pits, and seeded areas. Table D-7 in Irving (1993) describes the disturbed communities and the wetland community.

Wetland and riparian areas can temporarily cover over 800 hectares (2,000 acres) of the INEEL during periods of high water flow in the Big Lost River and significant snowmelt events. The areas include spreading areas, sinks, playas and depressions, and manmade ponds and excavations. These areas have been evaluated by INEEL personnel to determine if any are regulated wetlands or waters of the United States. An area in the Big Lost River sinks has been identified as a regulated wetland, and is shown on the map of the Big Lost River System (see Figure 2-4). In addition, other aquatic habitats are included on the map.

2.6 Hydrology

This section presents general subsurface water, surface water, and flood potential information for the INEEL.

2.6.1 Subsurface Water

The Snake River Plain Aquifer is a continuous body of groundwater that underlies nearly all of the eastern Snake River Plain. It includes an area of about 24,900 square kilometers (15,440 square miles) and extends to as much as 1.06 kilometers (3,500 ft) below land surface (Bishop 1993). The depth to the aquifer at the INEEL varies from approximately 61 meters (200 ft) in the north to 275 meters (900 ft) in the south (Bishop 1993).

Recharge waters from the Big Lost River to the Snake River Plain Aquifer have been significant during wet years. However, according to Bishop (1993), recharge is generally less than discharge. Except for evaporation losses, all water flowing in the Big Lost River through the eastern Snake River Plain is recharged to the groundwater. The aquifer groundwater on the INEEL flows generally southwest from the north and northeastern recharge areas.

2.6.2 Surface Water

Prior to agricultural development, three major streams drained into the basin where the INEEL is located: Big Lost River, Birch Creek, and Little Lost River. The Big Lost River enters the INEEL annually, except during drought conditions. Figure 2-5 shows the annual discharge of the Big Lost River from 1965 to 1997 upstream of the INEEL diversion (the location of the diversion is shown on Figure 2-4). Water flowed continuously from May 1968 to May 1977 (9 years) and from March 1982 to April 1987 (5 years). There was no flow from August 1987 through April 1995, except during June 1993. The Big Lost River flows northeast and terminates in sinks and playas as shown on Figure 2-4. During spring runoff, some storm water flows into the Big Lost River. Typically, storm water drains to low-lying areas during the spring runoff.

Birch Creek flowed into the Birch Creek playa before it was diverted for irrigation and power production, and construction or gravel pits. Now Birch Creek flows into the INEEL in channels constructed below the power plant and has not reached the playa in recent years. Typically, Birch Creek flows into the INEEL when the ground is frozen.

11 x 14 fold out

Figure 2-4. The Big Lost River System.

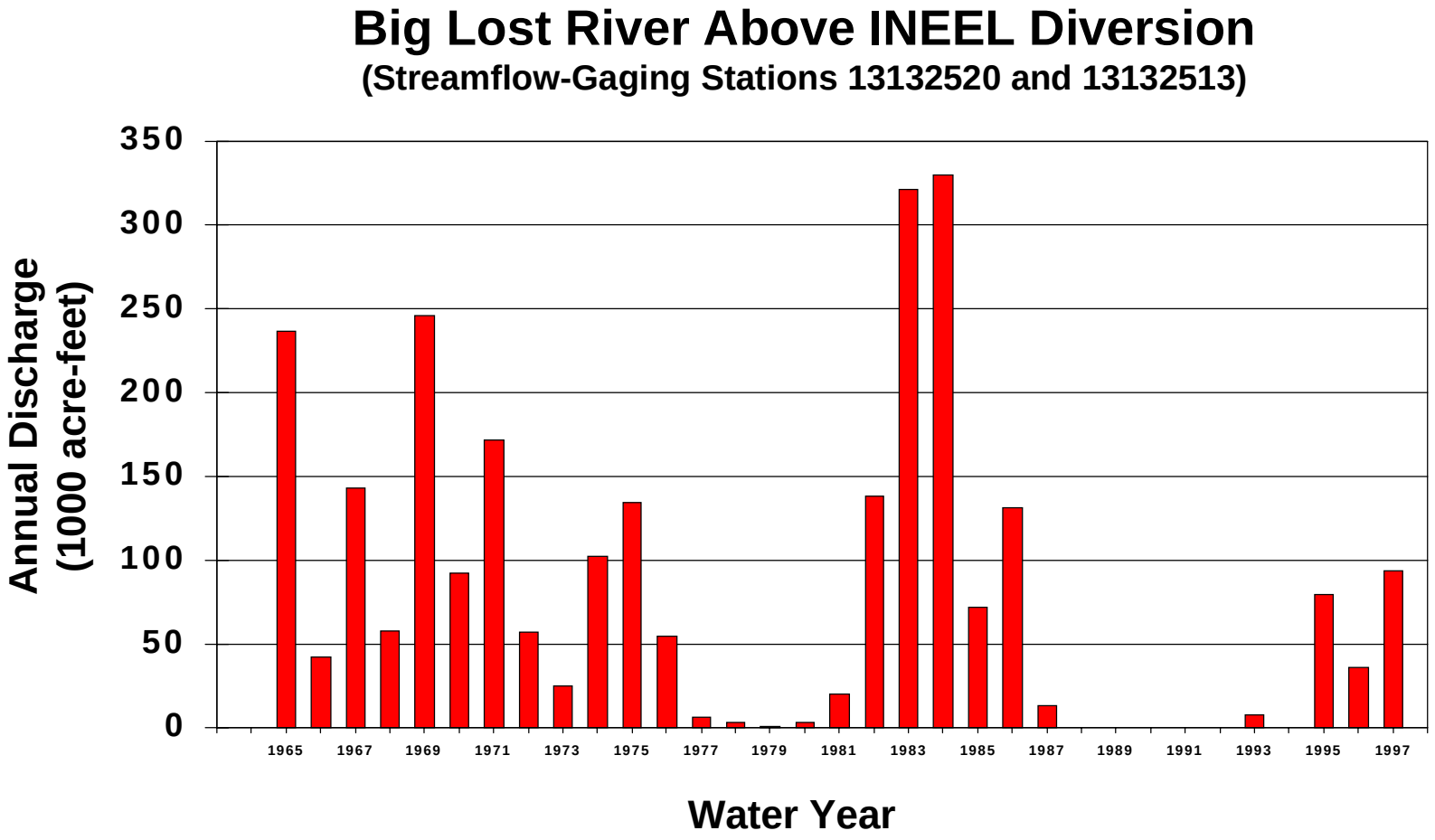

Figure 2-5. Big Lost River above INEEL diversion (Streamflow-Gaging Stations 13132520 and 13132513).

The Little Lost River flows to a playa at the INEEL boundary. However, it has not reached the INEEL in recent years.

Hinman (1993) (see Appendix E) summarizes EPA/DOE-ID discussions regarding which surface waters on the INEEL are waters of the United States as follows: the Big Lost River and tributaries with defined channels that directly connect to the Big Lost River are considered to be waters of the United States, as are the playas that terminate the Big Lost River. Isolated intermittent streams without defined channels directly connecting to the Big Lost River are not waters of the United States.

In November 1993, the Army Corps of Engineers designated Spreading Areas A and B near the RWMC as waters of the United States. Figure 2-4 shows the Big Lost River System, which is waters of the United States at the INEEL.

2.6.3 Flood Potential and Control

Flood potential from storm events and snowmelt also needs to be considered when planning for storm water discharge management at construction sites. Information regarding flood potential at the INEEL has been compiled in Volume 3 of the *Resource Conservation and Recovery Act (RCRA) Part B Permit Application for the INEL* (DOE 1992) for the southwestern and central INEEL, the northern INEEL, and the ICPP. Flood, runon, and runoff controls in the vicinity of specific waste management units for protection against localized storm events and rapid snowmelt runoff are presented in other volumes of DOE (1992) for the RWMC, ANL-W, Waste Experimental Reduction Facility [Power Burst Facility (PBF) area], New Waste Calcining Facility and Hazardous Chemical Waste Handling Facility (at ICPP), and Hazardous Waste Storage Facility (at CFA).

The Big Lost River commonly flows through the INEEL and is the nearest surface water body of potential influence to INEEL facilities, such as RWMC and ICPP. The Big Lost River is controlled by the Mackay Dam, 48 km (30 mi) northwest of Arco, Idaho. A flood diversion system was built in 1958 and modified in 1983 along the Big Lost River near the western boundary of the INEEL to divert flows that might create flood hazards for the INEEL facilities. Part of the flow from the main river channel is occasionally diverted into four spreading areas (Areas A, B, C, and D on Figure 2-4).

Flood control systems have been constructed at TAN, including three deep injection wells, several retention basins, and dikes around the west end of the Technical Support Facility (TSF). Berenbrock and Kjelstrom (1997) delineated areas that would be inundated by a 100-year peak flow in Birch Creek and concluded that the water surface would be about 2 feet lower than the TSF dike and the built-up Contained Test Facility (CTF). A similar study is in progress to delineate areas that would be inundated by a 100-year peak flow in the Big Lost River.

Deep injection wells have been drilled to manage snowmelt at or near PBF and CFA also.

2.6.4 Storm Water Discharge

Figure 2-6 shows an approximate area where storm water has a reasonable potential to discharge to waters of the United States. The drainage area is based on Bennett (1990) for the Big Lost River and its tributaries, spreading areas, and playas. The drainage area is based on Brenenbrock and Kjelstrom (1997) for Birch Creek and its playa. The INEEL plans to perform additional studies to further refine which areas of the INEEL have a potential to discharge storm water to waters of the United States. In the meantime, the requirements of the General Permit will be applied to projects within the area shown in Figure 2-6.

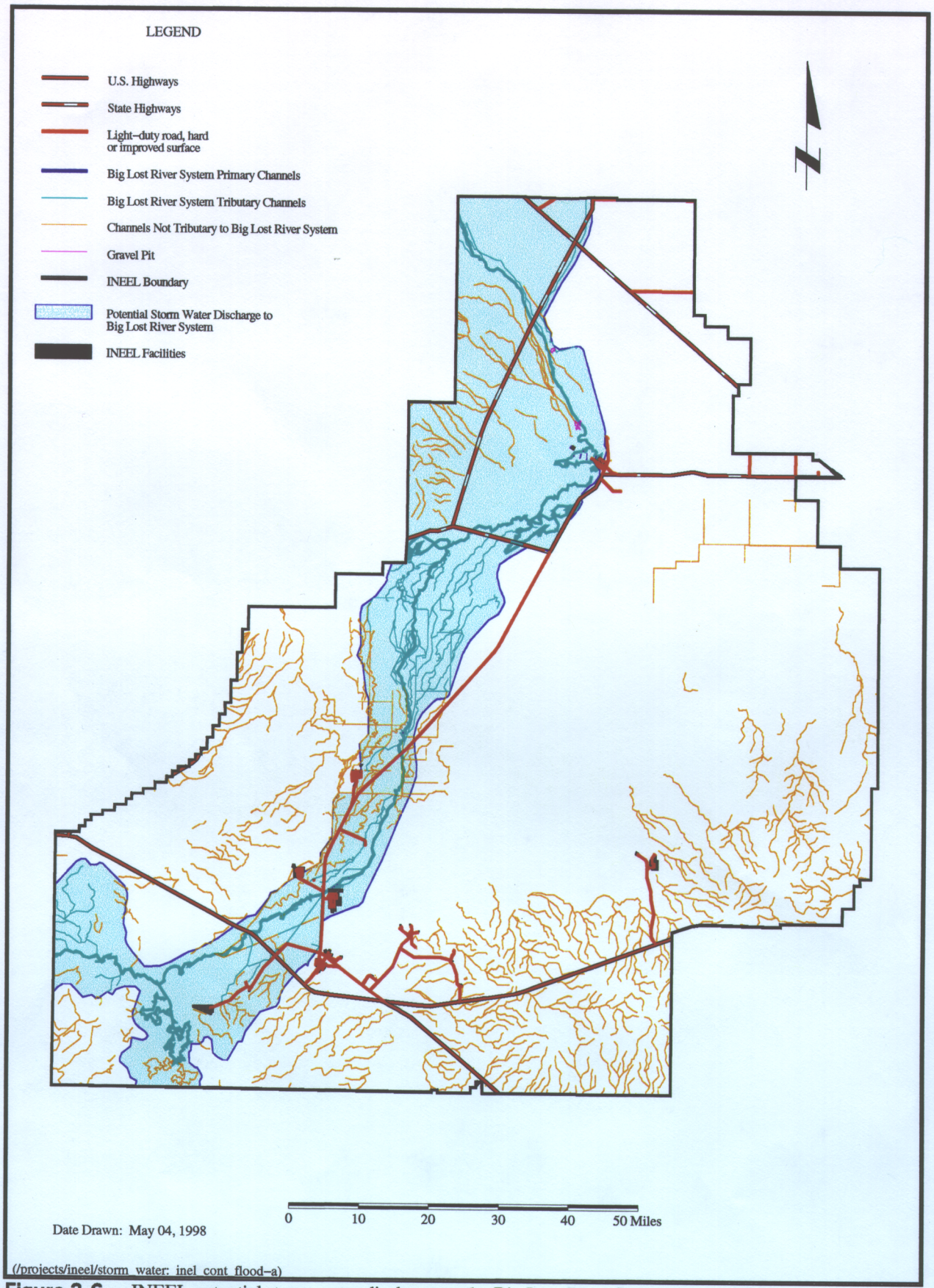

Figure 2-6. INEEL potential storm water discharge to the Big Lost River System

3. FACILITY SWPPP-CA

Facility SWPPP-CAs have been prepared for those facilities that have a potential to discharge storm water to the Big Lost River System as shown on Figure 2-6. The facility SWPPP-CAs are addendums to this Generic Plan and were prepared for the following: CTF, ICPP, and RWMC. Facility SWPPP-CAs include a map and identify existing sediment, erosion, and storm water controls; location of surface water; drainage patterns; existing land use; planned construction projects, and estimated runoff coefficients.

Project SWPPP-CAs must be appended to this Generic Plan or a facility SWPPP-CA, depending on project location. Figure 3-1 shows the relationships between the generic, facility, and project SWPPP-CAs.

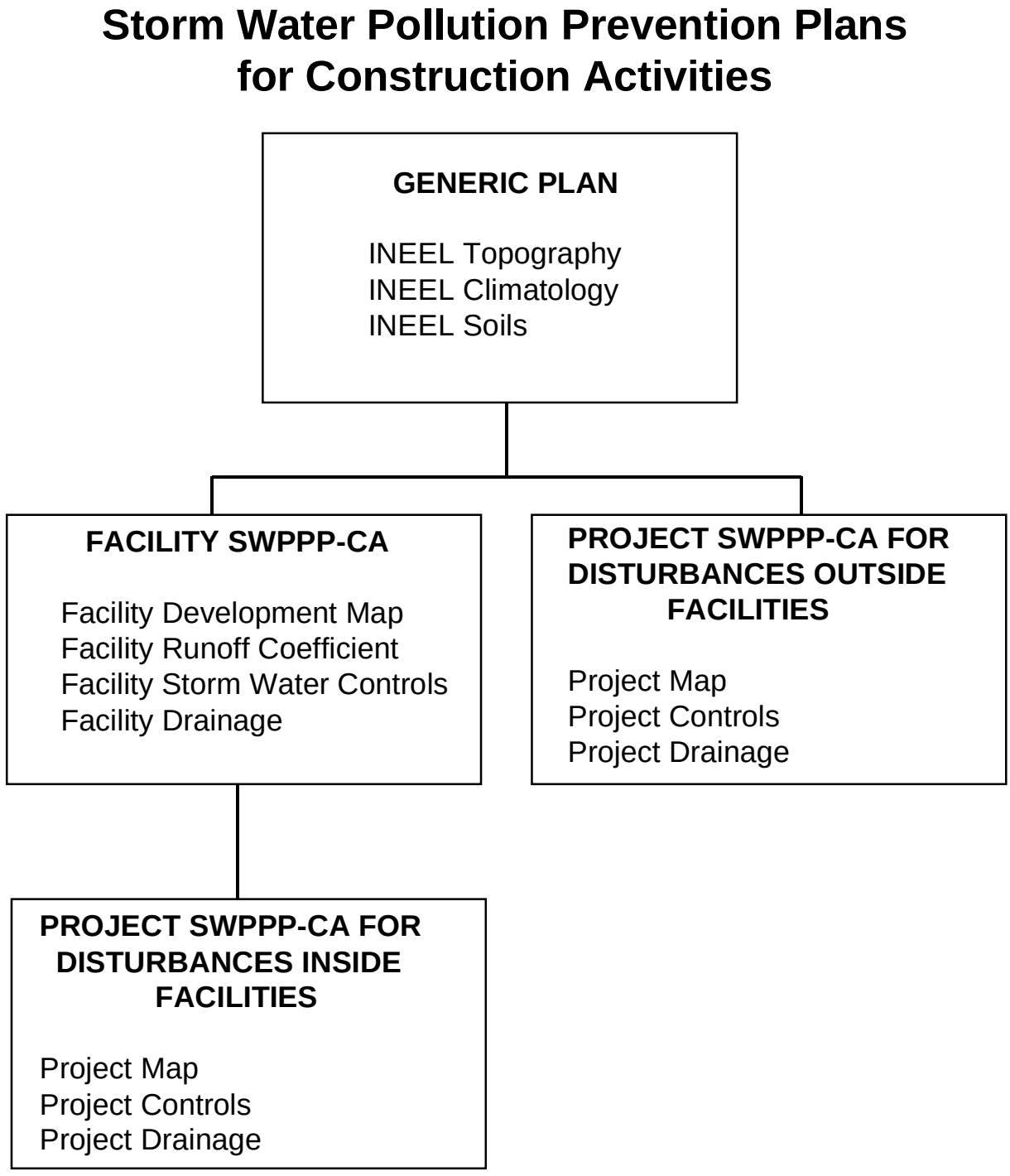

Figure 3-1. Hierarchy and content summary of INEEL storm water pollution prevention plans for construction activities.

4. PROJECT SWPPP-CAs

4.1 Introduction

The following sections provide information on different methods of erosion and sediment control, storm water management, control of potential sources of pollution, construction, maintenance, soil stabilization, inspection, training, and recordkeeping. Appendix A provides detailed information on the selection, design, and maintenance of erosion and sediment controls. Appendix B contains an example SWPPP-CA from the EPA guidance document (EPA 1992). It can be used for guidance on the length and complexity needed in a SWPPP-CA. The project SWPPP-CAs may be developed using the forms presented in Appendix C. The forms identify the elements that must be included in project SWPPP-CAs.

Project SWPPP-CAs should draw from the information presented in this Generic Plan and the facility SWPPP-CA, if appropriate. Project SWPPP-CAs must be designed for the specific project and area where construction will occur. Project SWPPP-CAs need only add project-specific information to be appended to this Generic Plan or to the appropriate facility SWPPP-CA. Project SWPPP-CAs must be prepared in accordance with good engineering practices. Project SWPPP-CAs should be prepared during design to avoid project delays and must be completed at least two days prior to **commencement of construction** (see definition) at the site (EPA 1998).

4.2 Types of Project SWPPP-CAs

Construction activities that involve soil disturbance within the area shown on Figure 2-6 must comply with this Generic Plan. Examples of construction activities are given in the following list.

- Constructing a facility
- Replacing an underground pipe system
- Grading a gravel road
- Remediating contaminated soil
- Demolishing a building
- Drilling a well.

Soil disturbance by LMITCO employees is not typically associated with construction activities since construction is usually performed by subcontractors. Those activities are controlled by the *Storm Water Pollution Prevention Plan for Industrial Activities* (SWPPP-IA)(DOE/ID-10431). Examples of those activities that involve soil disturbance by LMITCO employees and do not require a SWPPP-CA are given in the following list.

- Repair underground leaking pipe
- Geotechnical investigation with minimal disturbance

- Archaeological investigation with minimal disturbance
- Contaminated soil investigation with minimal disturbance
- Operation of landfill
- Operation of borrow source (for example, gravel pit).

Demolition activities and road maintenance are considered construction activities even when performed by LMITCO employees and require a project SWPPP-CA. A decision tree is shown in Figure 4-1 to determine when a project SWPPP-CA is required.

For construction activities outside of the area shown in Figure 2-6 that will disturb areas greater than 10 acres, Water Resources personnel must review projects as a component of the National Environmental Policy Act (NEPA) process. The rationale for the 10-acre area criteria is based on the guidance document (EPA 1992) recommendation that sediment basins should be installed for disturbed areas of 10 acres or more. Water resources personnel will evaluate the need for a study to determine if there is a potential to negatively impact aquatic habitat or waters of the U.S., including wetlands.

4.2.1 Long-Form Projects

Completion of a long-form SWPPP-CA is required for construction activities within the area shown in Figure 2-6, unless a short-form SWPPP-CA is authorized by the INEEL storm water coordinator. Long-form projects require evaluation for compliance with the *Endangered Species Act*, a notice posted near the main entrance of the construction site, minimized area of disturbance, preservation of vegetation where practical, good housekeeping, spill prevention, dust control, waste management, erosion and sediment control installation and maintenance, off-site tracking control, and final stabilization. Inspections are required monthly, after rainstorms of 0.5 in. or greater, during snowmelt, at project closeout, and upon final stabilization. Inspections are recommended by the General Permit before anticipated storm events expected to cause a significant amount of runoff. Required documents are a project SWPPP-CA, construction progress and delay records, inspection reports, spill reports, and notice of final stabilization completion. Long-form project SWPPP-CAs must be certified by the permittees.

4.2.2 Short-Form Projects

Exceptions from using the long-form are determined by the INEEL storm water coordinator on a case-by-case basis. In those cases, a short-form project SWPPP-CA is acceptable. For example, if a disturbance is less than 100 ft^2 and a flat, vegetated, 500-ft buffer zone is maintained, then a short-form project SWPPP-CA is justified. Short-forms are intended for projects that disturb a very small area and have other favorable factors such as:

- Far from the Big Lost River System
- Few fine-grained soils
- Flat topography
- Effective buffer zone.

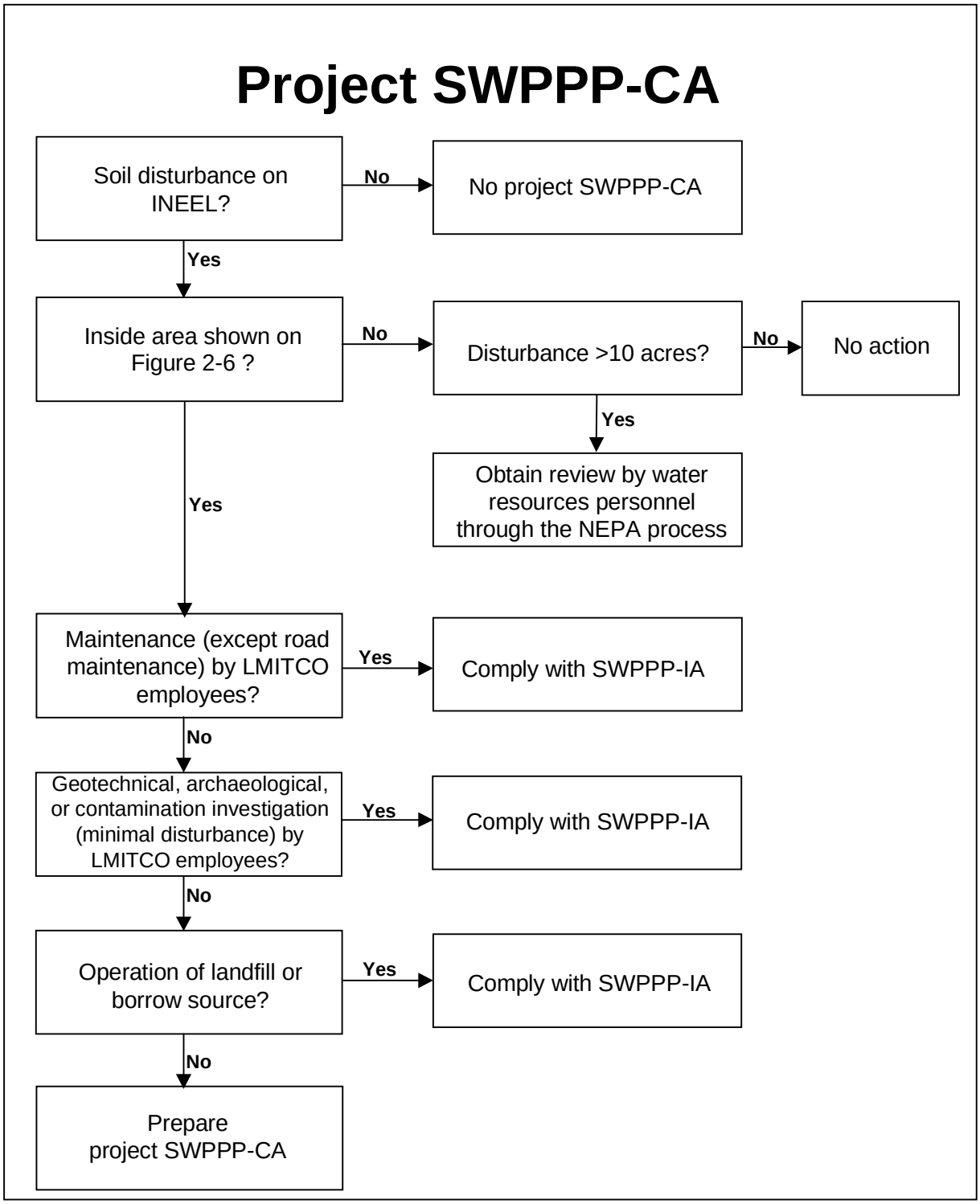

Figure 4-1. Decision tree for specific project storm water pollution prevention plans for construction activities.

Short-form projects require minimized area of disturbance, preservation of vegetation where practical, good housekeeping, spill prevention, dust control, proper waste management, off-site tracking control, and final stabilization. Inspections are required at project closeout and final stabilization. Required documents are a project SWPPP-CA, inspection reports, spill reports, and notice of final stabilization completion.

4.3 Contents of a Project SWPPP-CA

Project SWPPP-CAs shall provide a description of the nature of the construction activity and a site description, which describes potential pollutant sources. Project SWPPP-CAs shall provide the name of the receiving water(s) and the areal extent and description of wetlands at or near the site that will be disturbed or that will receive discharges from disturbed areas of the project (EPA 1998).

4.3.1 Site Map

Project SWPPP-CAs shall provide a general location map and a site map indicating the following: drainage patterns and approximate slopes anticipated after major grading activities; areas of soil disturbance; areas that will not be disturbed; locations of major structural and nonstructural controls identified in the SWPPP; locations where stabilization practices are expected to occur; locations of off-site material, waste, borrow or equipment storage areas; surface waters (including wetlands); and locations where storm water discharges to a surface water (EPA 1998).

A site map must be developed using the best available information. Maps with a 2-ft contour interval are available for each facility area. A site map is developed based upon the nature and extent of the proposed construction activity. The following pollution prevention goals should be considered in the development of the site map:

- Disturb the smallest vegetated area possible.
- Keep the amount of cut and fill to a minimum.
- Limit the impacts to sensitive areas, such as the following:
    - Steep or unstable slopes
    - Surface waters, including playas or spreading areas
    - Areas susceptible to erosion
    - Existing drainage channels.

Revised grades should be shown on the same map as the existing grades. Existing contours should be shown with dashed lines and proposed contours with solid lines. Topographic maps indicating existing and proposed contours for a site are suggested because it is easy to determine the areas that must be disturbed for regrading. At the INEEL, many areas are relatively flat (less than 1% grade) and do not have significant grade changes associated with the construction activity. In that case, proposed contour lines are not necessary, and an explanation may be included in the text.

The site map indicates the entire area that will be disturbed by the construction activity. A "limit of disturbance" line is drawn on the site map. All soil-disturbing activities, including clearing, stripping, excavating, backfilling, stockpiling (topsoil or other fill material), and paving should be within the limit of disturbance. The limit of disturbance should also include roads for construction vehicles, unless these roads are paved (or stabilized) and have measures to reduce tracking of sediments. The limit of disturbance should be a closed boundary line around the entire disturbed area. There can be "islands" of undisturbed areas inside the limit of disturbance, such as an area of natural vegetation or a stand of existing trees. Those islands should be encircled within a limit of disturbance.

The site map indicates drainage patterns of the site after the major grading activities. The drainage basin boundaries and drainage channels or culverts are also indicated. A drainage basin is the area in which water, sediments, and dissolved materials drain to a common outlet (such as a swale or storm drain pipe) from the site. There can be one or more drainage basins on a site. Drainage boundaries are closed lines that start and end at the common outlet. If there is a new or proposed underground storm drain system on the site, it should be indicated on the site map along with the pipe diameter and slope.

The surface waters or channels are indicated on the site map. Where storm water discharges to the Big Lost River System is identified. The site map is complete after the control structures and stabilization areas are indicated on the map.

4.3.2 Assessment

Assessment consists of measuring the size of the land disturbance and estimating the impact the project will have on storm water runoff from the site. Assessment consists of three tasks:

- Measure construction site area
- Measure drainage areas
- Calculate preconstruction and postconstruction runoff coefficients.

The area that will be disturbed by construction activities is measured on the site map. The area should be expressed in acres to the nearest tenth of an acre. Then, for the design of storm water management controls, the area of each drainage basin and the areas of each land use within each drainage basin are measured.

Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff. If the postdevelopment runoff exceeds predevelopment levels, the storm water regulations require a description of the technical basis used to select the practices to control pollution.

Project SWPPP-CAs shall provide estimates of the total area of the site that is expected to be disturbed by excavation, grading, or other activities, including off-site borrow and fill areas. Long-form project SWPPP-CAs shall provide an estimate of the runoff coefficient of the site for both the preconstruction and postconstruction conditions (EPA 1998).

4.3.3 Endangered Species Act

Storm water discharges must be in compliance with the *Endangered Species Act*. The INEEL must certify it meets one of the criteria in the General Permit to obtain coverage for storm water discharges. The INEEL satisfies the criteria by performing comprehensive field and written ecological evaluations,

which include determination of the presence or absence of listed or sensitive species or their habitat, any adverse impacts a construction activity might have on the species or its habitat, and recommendations to remediate any adverse impacts, or requests for a formal or informal consultation with the U.S. Fish and Wildlife Service. The evaluations are included in a file of the project's documents related to the *National Environmental Policy Act* (MCP-469 "NEPA and Environmental Permitting"). As of May 1998, the Environmental Science and Research Foundation performed evaluations for compliance with the Act on a project-by-project basis. If another entity performs the evaluations, that will not constitute failure to comply with this plan.

The bald eagle is the only known resident listed species at the INEEL, and habitat along the Big Lost River may need to be protected. This Generic Plan will not necessarily be revised to update the species and habitat; however, evaluations will be performed based on an accurate list of species and habitat.

Project SWPPP-CAs shall provide information on whether listed endangered or threatened species or critical habitat are found in proximity to the construction activity and whether such species may be affected by the applicant's storm water discharges or storm water discharge-related activities (EPA 1998). Projects must be performed in accordance with the recommendations to prevent or mitigate adverse impacts to listed or sensitive species or their habitat.

4.3.4 National Historic Preservation Act

If EPA modifies the General Permit regarding protection of historic resources, then guidance will be provided here for project SWPPP-CAs. Although the General Permit does not currently provide specific guidance concerning the *National Historic Preservation Act*, construction activities at the INEEL are performed in compliance with the Act.

4.3.5 Erosion and Sediment Controls

Soil erosion and sediment control measures are used to reduce the amount of soil particles that are carried off a land area and deposited in a receiving water. Since the INEEL has low precipitation and relatively flat topography, the potential for soil erosion is due primarily to wind. For short-form projects, erosion and sediment controls primarily consist of minimizing soil disturbance, controlling dust, and stabilizing disturbed areas. For long-form projects, additional soil erosion and sediment controls must be evaluated. A listing and brief discussion of controls and measures is presented in the following subsections. Detailed descriptions of the control measures are included in Appendix A.

4.3.5.1 Minimize Soil Disturbance. Minimizing the amount of disturbed soil, both in areal extent and severity, on the construction site decreases the amount of soil eroding from the site and can decrease the amount of controls that need to be constructed to remove sediment from runoff. To meet that goal, the following practices should be put into use whenever possible:

- Minimize the area disturbed by construction activities.
- Minimize the severity of the disturbance.
- Stage construction activities to minimize the period exposed soil is left in an unstabilized condition.
- Minimize grade changes.

To minimize soil disturbance, the project documents designate clearing limits for the construction activities. If possible, vegetation should not be removed when installing a fence line, power line, temporary road, etc. Although brittle shrubs are likely to be killed, understory forbs and grasses may survive (Anderson and Shumar 1989).

4.3.5.2 Structural Controls. Sediment and erosion controls are designed to retain sediment onsite to the maximum extent practicable. All control measures must be properly selected, installed and maintained in accordance with the manufacturers' specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the control must be replaced or modified for the site-specific situation (EPA 1998).

Offsite runoff is diverted from flowing across disturbed areas, and the amount of storm water that comes in contact with exposed soils is decreased by installing earth dikes, interceptor dikes and swales, or a drainage swale. The velocity of runoff is decreased by designing gently sloped contours (slopes less than 9%). Where steep slopes are necessary, gradient terraces and surface roughening can be used to slow down the runoff velocity and minimize erosion. Most areas at the INEEL have flat slopes (less than 1%) and a very low potential for erosive storm water runoff velocities. Flat slopes control erosion by dissipating its velocity.

Structural practices used in sediment and erosion control divert storm water flows away from exposed areas, convey runoff, prevent sediments from flowing offsite, and also reduce the erosive forces of runoff waters. The structures can be either permanent or temporary controls. Appendix A includes more detailed design information, including when and where to use the control, what to consider, advantages and disadvantages of the method, design criteria, materials required, construction specifications, maintenance requirements, cost, and sources. Placement of structural practices in flood plains should be avoided to the degree attainable. The installation of these devices may be subject to Section 404 of the *Clean Water Act.*

Sediment basins can be as simple as placing an earthen embankment across a low area or drainage swale, or they can be created by excavation. Sediment basins can be designed to maintain a permanent pool or drain completely dry. At the INEEL, sediment basins may be designed to allow most of the runoff water to evaporate or infiltrate. Furthermore, natural drainage basins (depressions) and infiltration areas are common at the INEEL. Natural basins may be adequate sediment basins. Sediment basin requirements are presented in the following three paragraphs.

For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained, or equivalent control measures shall be provided where attainable until final stabilization of the site. [At the INEEL, the 2-year, 24 hour storm is equivalent to 1.1 inches of rain according to the National Oceanic and Atmospheric Administration (1973) and 0.9 inches of rain according to Sagendorf (1996).] Where no such calculation has been performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures shall be provided where attainable until final stabilization of the site. When computing the number of acres draining into a common location, it is not necessary to include flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin.

In determining whether installing a sediment basin is attainable, the permittee may consider factors such as site soils, slope, available area on site, etc. In any event, the permittee must consider safety as a design factor for the sediment basin, and alternative sediment controls shall be used where site limitations would preclude a safe design. For drainage locations that serve 10 or more disturbed acres at one time

and where a temporary sediment basin or equivalent controls is not attainable, smaller sediment basins or sediment traps or both should be used. Where neither the sediment basin nor equivalent controls are attainable due to site limitations, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down-slope boundaries of the construction area and for those side-slope boundaries deemed appropriate as dictated by individual site conditions. The EPA encourages the use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal.

For drainage locations serving less than 10 acres, smaller sediment basins or sediment traps or both should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down-slope boundaries (and for those side-slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided. The EPA encourages the use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal (EPA 1998).

Protection must be added to remove the sediment before it flows into drains or inlets. Where there is an existing storm drain or inlet that will receive flow from a disturbed area, a sediment basin, sediment trap, or other type of inlet protection must be provided.

Each project SWPPP-CA shall include a description of appropriate controls for the proposed construction activity and measures that will be implemented at the construction site. It will clearly describe each major activity, appropriate control measures, the timing during the construction process that the measures will be implemented, and the entity responsible for implementation (EPA 1998). It will also describe the control, its purpose, and why it is appropriate. It will also include specific information, such as size, materials, and methods of construction.

4.3.5.3 Dust Control. Wind is capable of causing erosion, particularly in dry climates or during the dry season. Wind erosion can occur wherever the surface soil is loose and dry, vegetation is sparse or absent, and the wind is sufficiently strong. Wind erodes soils and transports the sediments offsite, where they may be washed into the receiving water by the next rainstorm. Therefore, various methods of dust control may need to be employed to prevent dust from being carried away from the construction site. There are many ways to accomplish this, and some are described below:

- Vegetative cover—For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control.
- Mulch—When properly applied, mulch offers a fast, effective means of controlling dust.
- Spray-on adhesive—Asphalt emulsions, latex emulsions, or resin in water can be sprayed onto mineral soil to prevent their blowing away.
- Calcium chloride—Calcium chloride may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage.
- Sprinkling—The site may be sprinkled until the surface is wet. Sprinkling is especially effective for dust control on haul roads and other traffic routes.
- Stone—Used to stabilize construction roads; can also be effective for dust control.

- Barriers—A board fence, wind fence, sediment fence, or similar barrier can control air currents and blowing soil. All of these fences prevent erosion by obstructing the wind near the ground and preventing the soil from blowing offsite.

Barriers can be part of long-term dust control strategy in arid and semiarid areas; however, they are not a substitute for permanent stabilization. A wind barrier generally protects soil downward for a distance of 10 times the height of the barrier. Perennial grass and stands of existing trees may also serve as wind barriers.

The above measures for dust control should be used when open dry areas of soil are anticipated on the site. Clearing and grading activities can blow large amounts of dust; therefore, one or several dust control measures should be considered prior to clearing and grading. One should also note that many of the water erosion control measures indirectly prevent wind erosion.

As the distance across bare soil increases, wind erosion becomes more and more severe. In arid and semiarid regions where rainfall is insufficient to establish vegetative cover, mulching may be used to conserve moisture, prevent surface crusting, reduce runoff and erosion, and help establish vegetation. It is a critical treatment on sites with erosive slopes.

The direction of the prevailing winds and careful planning of clearing activities are important considerations. As a standard practice, any exposed area should be stabilized to prevent both wind and water erosion.

Methods of dust control for stockpiles of fine-grained soils are as follows:

- Constructing rectangular pile with long axis parallel to predominate wind directions.
- Forming ridges perpendicular to predominate wind direction.
- Installing a silt fence at the base to serve as a wind break and sediment control.
- Applying temporary mulch.
- Establishing temporary vegetation.

4.3.5.4 Stabilization Practices. The project SWPPP-CA must include a description of temporary and permanent stabilization practices, including a schedule of when the practices will be implemented. Common stabilization practices are described in Appendix A, including when and where to use the practice, what to consider, and the advantages and disadvantages of the practice. Gravel cover is an acceptable permanent soil stabilization practice in areas where weeds are managed, but it is not included in Appendix A.

Stabilization measures shall be initiated as soon as practicable where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity has temporarily or permanently ceased, except as provided below:

- Where initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.

- Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site.

- In arid areas (areas with an average annual rainfall of 0–10 inches), and semi-arid areas (areas with an average annual rainfall of 10–20 inches), and areas experiencing droughts where initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable (EPA 1998).

Because the INEEL is defined as an arid area, vegetation measures may be delayed by seasonal arid conditions. However, revegetation shall be initiated as soon as practicable. Fall, late winter, and early spring are the most favorable times for revegetation efforts. A uniform perennial vegetative cover is required. Where initial reseeding or revegetation efforts are unsuccessful, the revegetation efforts shall continue until at least 70% of preconstruction vegetative density is obtained.

Revegetation species adapted to the local environment are recommended. Anderson and Shumar (1989) in *Guidelines for Revegetation of Disturbed Sites at the Idaho National Engineering Laboratory* detail the most effective revegetation methods and species at the INEEL. Revegetation efforts at the INEEL should follow the detailed recommendations in that report. The INEEL revegetation coordinator is available to assist with revegetation efforts.

4.3.5.5 Maintenance. Maintenance includes methods used to maintain vegetation, erosion, and sediment control measures in effective operating condition, and maintain other protective measures identified in the facility or project SWPPP-CA. Maintenance can be specified on a regular interval or can be performed when the inspection indicates maintenance is needed. Identified maintenance needs shall be accomplished before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls. Accumulated sediments must be removed when design capacity has been reduced by 50% (EPA 1998). Maintenance intervals and methods are listed in Appendix A. Maintenance should be included in the project documents as an ongoing activity throughout the construction process. Controls must be in good operating condition until the protected area has been completely stabilized or the construction project is complete.

If sediments escape the construction site, offsite accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts (for example, fugitive sediment in street could be washed into storm sewers by the next rain or pose a safety hazard) (EPA 1998).

4.3.6 Permanent Storm Water Management Controls

Storm water management controls are required. The project SWPPP-CA must include a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The project SWPPP-CA must include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels. The description should include pollutant removal efficiencies of the measures, site-specific factors that affect the application of the measures, the economic achievability of the measure at the site, and any other relevant factors (EPA 1998). If the existing storm water/sediment removal system is capable of handling the increased storm water flows, this is a sufficient evaluation.

Storm water management measures include infiltration of runoff onsite, flow attenuation by vegetation or natural depressions, outfall velocity dissipation devices, storm water retention structures and artificial wetlands, and storm water detention structures. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a nonerosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (for example, no significant changes in the hydrological regime of the receiving water). A combination of measures may be needed depending on the characteristics of each site (EPA 1998). DOE Order 6430.1A, Section 0270-2, lists requirements for storm water management systems for DOE facilities. Storm water management controls should be identified on the site map and described in the project SWPPP-CA. Maintenance and operation of storm water controls during construction is regulated by this Generic Plan and its appended plans. After final stabilization, storm water drainage systems are managed in accordance with the SWPPP-IA.

4.3.7 Identification and Control of Other Potential Sources of Pollution

Control measures are required to prevent contact between storm water and potential sources of pollution.

4.3.7.1 Waste Disposal. Proper management and disposal of building materials and other construction site wastes are important parts of pollution prevention. No solid materials shall be discharged to the Big Lost River System. Litter, construction debris, and construction chemicals shall be prevented from becoming a pollutant source (for example, picked up daily) (EPA 1998). Types of wastes that must be managed include, but are not limited to, demolition debris, sand blasting grit, used spill response material, packaging material, concrete from washing ready-mix trucks, and sanitary sewage. Project documents must specify proper waste disposal methods in accordance with the *INEEL Reusable Property, Recyclable Materials, and Waste Acceptance Criteria* (DOE/ID-10381).

4.3.7.2 Minimizing Offsite Vehicle Tracking of Sediments. Vehicle tracking of sediments offsite is a common source of pollution from construction sites. Offsite vehicle tracking of sediments shall be minimized (EPA 1998). The source can be minimized by using stabilized construction entrances and construction access roads. Appendix A includes general design information on these structures.

4.3.7.3 Sanitary/Septic Disposal. The project SWPPP-CA shall be consistent with applicable waste disposal, sanitary sewer, or septic system regulations (EPA 1998). Construction sites must have sanitary facilities for onsite personnel. The most common facilities are portable facilities that store sanitary waste and must be emptied periodically. Other facilities include septic systems or a discharge to the sanitary sewer system. Untreated, raw sewage, or septage should never be discharged or buried onsite.

4.3.7.4 Material Management. Because material storage on a construction site is a major source of risk for storm water runoff pollution, material management can prevent a pollution problem at the source. The SWPPP-CA shall include a description of construction and waste materials expected to be stored onsite with updates as appropriate. The SWPPP-CA shall also include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to storm water, and spill prevention and response. Offsite storage of material, including soil piles, used solely by the permitted project are considered part of the project and shall be addressed in the project SWPPP-CA (EPA 1998).

4.3.7.5 Spill Prevention and Response. Spills are a source of storm water contamination on a construction site. Spills can contaminate soil and water, resulting in potential health risks. The General Permit does not authorize the discharge of hazardous substances or oil resulting from an onsite spill (EPA 1998). The *INEEL Emergency Plan/RCRA Contingency Plan* (Manual 16A) includes spill prevention and

response requirements for each facility. Subcontractors are required to comply with the *Subcontractor Requirements Manual* (LMITCO), which addresses spill prevention and requires the subcontractors to have a spill response program and personnel training plan.

4.3.7.6 Control of Allowable Nonstorm Water Discharges. Except for fire-fighting activity and the allowable nonstorm discharges listed below, nonstorm water discharges are specifically prohibited. The discharges cannot be included in the project SWPPP-CA if they are not directly related to and originate from the construction site or dedicated support activity (EPA 1998). Facility and project SWPPP-CAs must list the following allowable discharges if they are applicable:

- Fire hydrant flushings
- Potable water sources (including well, waterline, and water tank flushings)
- Uncontaminated groundwater or spring water
- Foundation or footing drains where flows are not contaminated with process materials such as solvents
- Exterior building wash down without detergent
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
- Air conditioning condensate
- Waters without detergents used to wash vehicles to minimize offsite sediment tracking
- Waters used to control dust or compact soil that do not produce runoff.

For nonstorm water discharges not listed above, some options for handling the discharge include eliminating the source of the discharge or directly discharging to the sanitary sewer or shallow injection well. Discharges to the sanitary sewer system or shallow injection well must be approved in advance by the operator of the system.

The project SWPPP-CA shall identify and ensure the implementation of appropriate pollution prevention measures for the nonstorm water components of the discharge (EPA 1998). Practices and systems to prevent pollution from allowable, nonstorm water discharges include the following:

- All down-slope site sedimentation and erosion controls should be in place prior to the discharge.
- Discharges with sediment loads should be discharged so that sediment pollution is minimized. Such discharges include dewatering discharges and discharges from sediment traps and basins.
- Discharges with sediment should be directed to pass through a sediment-filtering device. Sediment-filtering devices include sediment traps and basins, silt fences, vegetated filter strips, sump pits, or sediment tanks (EPA 1992).

4.3.7.7 Mobile Asphalt Plants and Mobile Concrete Plants. Project SWPPP-CAs shall provide the location and description of any discharge associated with industrial activity, including storm water discharges from asphalt plants and concrete plants that are dedicated to the construction project. The project SWPPP-CA shall describe control measures that will be implemented to minimize pollutant discharges (EPA 1998).

4.3.8 Construction and Implementation

4.3.8.1 Post SWPPP-CA Notice. The construction manager must verify that the subcontractor posts a notice near the main entrance of the construction site with the following information:

- The NPDES general permit number for the project or a copy of the Notice of Intent if a permit number has not yet been assigned
- The name and telephone number of the construction manager
- A brief description of the project
- The location of the SWPPP if the site is inactive or does not have an onsite location to store the plan.

If posting this information near a main entrance is not feasible due to safety concerns, the notice shall be posted in a building nearby. If the construction project is a linear construction project (for example, pipeline, highway), the notice must be placed in an accessible location near where construction is actively underway and moved as necessary (EPA 1998).

4.3.8.2 Sequence of Controls and Construction. Long-form project SWPPP-CAs shall provide a description of the intended sequence of major activities that will disturb soils for major portions of the site [e.g., grubbing, excavation, grading, utilities and infrastructure installation]. The project SWPPP-CA must clearly describe appropriate control measures for each major activity and the timing for implementing the control measures during the construction process (EPA 1998). Controls should be constructed or applied in accordance with good engineering practices and must be coordinated with the construction activity. When determining the sequence of construction activities, the following principals must be considered:

- Install down-slope and side-slope perimeter controls before land-disturbing activity occurs.
- Minimize the area of disturbance, and do not disturb an area until it is necessary for construction to proceed.
- Cover or stabilize as soon as possible.
- Time activities to limit impact from seasonal climate changes or weather events.
- Delay construction of infiltration measures until the end of the construction project when upstream drainage areas have been stabilized.
- Remove temporary perimeter controls after all upstream areas are stabilized.

4.3.8.3 Construction Records. For long-form project SWPPP-CAs, the project manager is required to keep records of the construction progress and delay. The records are used to document that soil stabilization is performed within the required time frame. The records are transmitted to the INEEL storm water coordinator at project closeout and included in the project SWPPP-CA. The records include dates of the following activities:

- Major grading activities in a particular area
- Beginning or cessation of construction activities in an area, temporarily or permanently
- Initiation of stabilization measures in a particular area (EPA 1998).

4.3.8.4 Changing the SWPPP-CA. When changes in design, construction, operation, or maintenance occur that have a significant effect on the potential for discharging pollutants in storm water at a site, the appropriate SWPPP-CA must be modified (EPA 1998). Examples of changes include major changes in construction scope or design specifications or ineffective erosion and sediment controls. A change in the construction schedule requires a modification to the project SWPPP-CA only if controls need to be modified.

The SWPPP-CA must be modified whenever inspections or investigations indicate it is ineffective in eliminating or significantly minimizing pollutants, or is otherwise not achieving the general objectives of controlling pollutants in storm water discharges from construction activity (EPA 1998).

Also, the project SWPPP-CA must be modified within 14 calendar days of a discharge of a hazardous substance or oil in an amount equal to or greater than a reportable quantity to the Big Lost River System. The modification must provide the date, circumstances, and a description of the discharge. If appropriate, the project SWPPP-CA must be modified to identify measures to prevent the recurrence of such releases and to respond to such releases (EPA 1998).

Additionally, if the EPA finds that the SWPPP-CA does not meet one or more of the minimum requirements, the permittees will be notified of required changes. The permittees then have seven days to make any needed changes (unless another time period is specified). The permittees shall then certify that the requested changes have been made. The EPA may take appropriate enforcement action for the period the permittee was operating under a SWPPP-CA that did not meet the minimum requirements (EPA 1998).

4.3.8.5 Releases of Reportable Quantities. Requirements for spill reporting are identified in LMITCO Manual 8–*Environmental Management* (MCP-439). All chemical releases must be reported to electronic pager 6400, regardless of the quantity of the release. The Spill Notification Team (pager 6400) determines if a reportable quantity is involved and assists facility personnel in making required notifications. When spills or discharges to the Big Lost River System contain a hazardous substance or oil in an amount equal to or in excess of a reporting quantity during a 24-hour period, the following actions must be taken: notify the National Response Center as soon as there is knowledge of the discharge, and modify the project SWPPP-CA within 14 days of knowledge of the release (EPA 1998).

4.3.9 Inspection

After the specific storm water pollution protection measures are put into operation, they must be inspected. Inspection requirements are incorporated into the project inspection plan. Disturbed areas,

storage areas, structural control measures, and locations where vehicles enter or exit the site are inspected for evidence of or the potential for pollutants entering the drainage system.

4.3.9.1 Conducting Inspections. For long-form projects, inspections of construction activities are required at least monthly, within 24 hours of every rainfall of 0.5 in. or greater, at project close-out, and at final stabilization (EPA 1998). Inspections are recommended by the General Permit prior to anticipated storm events expected to cause a significant amount of runoff. For short-form projects, inspections are required at project close-out and final stabilization. Additionally, inspections are required after any significant snowmelt, as determined by the INEEL storm water coordinator. However, inspections may be more frequent depending on the complexity of the construction project, its proximity to the Big Lost River System, and the phase of the construction project.

Inspections are performed by qualified personnel with oversight by the INEEL storm water coordinator. The minimum documentation requirements are presented below:

- Summary of the scope of the inspection
- Name and qualifications of inspector and date of inspection
- Major observations relating to the implementation of the SWPPP-CA
- Identification of any incidents of noncompliance
- Actions taken to correct problems identified (EPA 1998).

The inspector checks that larger areas are not unnecessarily disturbed. The inspector assesses any storm water or erosion and sediment control systems as documented by the project SWPPP-CA. The inspector ensures all required measures are in place and working effectively. When inspecting pollution prevention systems, an inspector primarily looks for (1) whether the measure was installed/performed correctly, (2) damage to the measure since it was installed/performed, and (3) need for corrective actions, including additional control measures.

Where discharge locations are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent practicable. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking (EPA 1998).

Based on the results of the inspection, the project SWPPP-CA must be revised, as appropriate, to include additional or modified measures to correct problems identified. Revisions must be completed within seven calendar days following the inspection. Implementation must be completed before the next anticipated storm event. If implementation before the next anticipated storm event is impracticable, implementation must be as soon as practicable (EPA 1998). The inspector must report control measure problems to the INEEL storm water coordinator and project manager within one working day. If during the normal day-to-day routine inspections, the inspector identifies problems with the control measures, appropriate documentation is required.

4.3.9.2 Recordkeeping. Recordkeeping is necessary to document any inspections of pollution prevention systems and to ensure regulatory requirements are met. The inspection forms are provided in

Appendix C. Upon completion of an inspection, the inspectors submit original documentation to the INEEL storm water coordinator.

4.3.9.3 Inspector Training. Inspectors are required to participate in training provided by the INEEL storm water coordinator. Training for inspectors of storm water pollution prevention measures covers the following:

- When to perform inspections
- What to observe during inspections
- How to document inspections
- Who to notify following inspections
- The construction and maintenance requirements for control measures.

4.3.10 Final Stabilization

A site is considered stabilized when the conditions have been met as specified in the General Permit. According to the General Permit, final stabilization means that all soil-disturbing activities at the site have been completed, and a uniform (for example, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed. In such parts of the country, background native vegetation will cover less than 100% of the ground (for example, arid areas, beaches). Establishing at least 70% of the natural cover of the native vegetation meets the vegetative cover criteria for final stabilization (for example, if the native vegetation covers 50% of the ground, 70% of 50% would require 35% total cover for final stabilization; on a beach with no natural vegetation, no stabilization is required) (EPA 1998).

The notice of final stabilization completion for each project is prepared by the INEEL storm water coordinator. The Notice of Final Stabilization Completion form is presented in Appendix C.

The termination of the project SWPPP-CA need not correspond to closeout of the construction project. Continued maintenance may be required until final stabilization is achieved.

5. RESPONSIBILITIES

5.1 INEEL Storm Water Coordinator or Designee

The INEEL storm water coordinator is responsible for the overall coordination and implementation of the SWPPP-CA. The INEEL storm water coordinator is the point of contact with the DOE-ID Environmental Programs and the DOE-ID Construction Management Division. The INEEL storm water coordinator oversees preparation and implementation of project SWPPP-CAs.

The INEEL storm water coordinator performs periodic inspections of construction sites to evaluate the effectiveness of the inspections program and determine whether additional control measures are required for a specific construction project. The INEEL storm water coordinator or designee performs inspections after project closeout and on Fridays, Saturdays, Sundays, and holidays following rainstorms. If an increase in the frequency of inspections for a specific project is warranted, the INEEL storm water coordinator notifies the project manager and inspector when changes to the inspection program are implemented. The INEEL storm water coordinator evaluates the effectiveness of control measures and is responsible for requesting changes to current construction practices or changes in the appropriate SWPPP-CA. Within a facility area, the facility storm water coordinator may share the responsibility with the INEEL storm water coordinator.

The INEEL storm water coordinator obtains precipitation data from the National Oceanic Atmospheric Administration and relays it to inspectors. The INEEL storm water coordinator is responsible for preparing the notice of final stabilization completion. The INEEL storm water coordinator maintains all records as required by the regulations and the INEEL SWPPP Program. The INEEL storm water coordinator's approval signature is required on the project SWPPP-CAs and reports of inspections performed by the INEEL storm water coordinator.

5.2 Project Manager

The project manager must understand the requirements of the INEEL SWPPP-CA. The project manager is responsible for developing and revising project SWPPP-CAs. The project manager's signature is required on project SWPPP-CAs. If any deficiencies of the project SWPPP-CA are identified, the project manager must notify the INEEL storm water coordinator to evaluate the deficiencies. For long-form projects, the project manager is responsible for preparing construction progress and delay records. The project manager must maintain a copy of the project SWPPP-CA and supporting documents for the duration of the project. The project manager is responsible for ensuring that the responsibilities are fulfilled for the following positions: designers, procurement agents, construction managers, quality engineers, and inspectors. The project manager should distribute copies of the project SWPPP-CA to NEPA personnel, procurement agents, quality engineers, and inspectors. The project manager is responsible for revising project SWPPP-CAs when changes to the project have a significant effect on the potential for discharging pollutants, within 14 days of a spill to the Big Lost River System, and within 7 days if EPA finds the project SWPPP-CA does not meet the minimum requirements. The project manager is responsible for revising the project SWPPP-CA within 7 days and implementing corrective measures before the next anticipated storm event whenever inspections indicate the project SWPPP-CA is ineffective.

5.3 Project Designer

The project designer must understand the requirements of the INEEL SWPPP-CA. The designer must include erosion, sediment, storm water controls, and final stabilization in construction project designs. The designer must ensure that specifications meet SWPPP-CA requirements, such as minimal clearing limits, stabilized construction entrances, timely soil stabilization, and maintenance of erosion and sedimentation controls.

5.4 Procurement Agent

The procurement agent must understand the requirements of the INEEL SWPPP-CA and ensure that contractual documents provide requirements, such as dust control, good housekeeping practices, proper material management, minimal off-site tracking, waste disposal, spill prevention, and training. The project SWPPP-CA should be included in the bid package for the construction project.

5.5 Construction Manager

The construction manager must have a copy of the project SWPPP-CA and required reports available at a central location on the construction site for use by all those identified as having responsibilities under the plan. The construction manager must verify that the subcontractor has posted a notice with SWPPP-CA information near the main entrance of the construction site.

5.6 Quality Engineer

The quality engineer must understand the inspection requirements in the INEEL SWPPP-CA and ensure that appropriate storm water inspections are included in project inspection plans.

5.7 Inspector

The inspector must understand and be familiar with the requirements in the INEEL SWPPP-CA and ensure they are implemented. The inspector is responsible for assessing site conditions and determining whether additional storm water control measures are necessary. The inspector continues inspections when there is a temporary halt in construction. The inspector's signature is required on inspection reports. Following project closeout, the inspection responsibility transfers to the INEEL storm water coordinator.

5.8 LMITCO Environmental Affairs Director

The Environmental Affairs director is the LMITCO representative who certifies and transmits SWPPP-CAs, inspection reports, spill reports, and notices of final stabilization to DOE-ID.

5.9 DOE-ID Environmental Programs and Settlement Agreement Manager

The DOE-ID Environmental Programs and Settlement Agreement manager is the DOE-ID representative who certifies SWPPP-CAs, inspection reports, spill reports, and notices of final stabilization.

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7. DEFINITIONS

Commencement of construction—The initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

Construction—Excavation, site development, grading, and other surface disturbance activities.

Control measure—Any pollution prevention practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States.

Discharge of storm water associated with construction activity—A discharge of pollutants in storm water runoff from areas where soil disturbing activities (for example, clearing, grading, or excavation), construction materials or equipment storage or maintenance (for example, fill piles, borrow area, concrete truck washout, fueling) or other industrial storm water directly related to the construction process (for example, concrete or asphalt batch plants) are located (EPA 1998).

Pollutant—Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials [except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*], heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) sewage from vessels; or (b) water, gas, or other material that is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources. (40 CFR 122) NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes.

Pollution prevention practice—Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. Pollution prevention practices also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Waters of the United States—

(1) All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate “wetlands;”

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

a. Which are or could be used by interstate or foreign travelers for recreational or other purposes;

b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c. Which are used or could be used for industrial purposes by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under this definition;

(5) Tributaries of waters identified in paragraphs (1) through (4) of this definition;

(6) The territorial sea; and

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1 through 6 of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirement of the CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water that neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the *Clean Water Act*, the final authority regarding *Clean Water Act* jurisdiction remains with EPA (40 CFR 122).

Appendix A

Detailed Description of Management Practices for Storm Water Pollution Prevention Plans

Appendix B

Example Storm Water Pollution Prevention Plan

Appendix C

Forms

Appendix D

NPDES General Permit for Storm Water Discharges from Construction Activities

Appendix E

Correspondence

ADDENDUM I

Contained Test Facility Storm Water Pollution Prevention Plan For Construction Activities

ADDENDUM II

Idaho Chemical Processing Plant
Storm Water Pollution Prevention Plan For
Construction Activities

ADDENDUM III

Radioactive Waste Management Complex
Storm Water Pollution Prevention Plan
For Construction Activities